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EXAMINER

WANG, JIN CHENG

ART UNIT

PAPER NUMBER

2672

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

N.K.

# Office Action Summary

Application No.

09/672,639

Applicant(s)

DOTSON ET AL.

Examiner

Jin-Cheng Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Tjandrasuwita U.S. Patent No. 6,198,469.

3. Claim 1:

U.S. Pat. No. 6, 198,469 to Tjandrasuwita has taught a raster engine (flat panel interface 113 of figure 2) for interfacing a frame buffer in a computer system (figure 1) to one of a plurality of disparate display types (column 4, lines 52-61), comprising:

(a) At least one control register programmable via the computer system to select a display mode (column 5, lines 58-65), e.g., the display mode can be selected at any given time (figure 2, and column 6, lines 1-20);

(b) A grayscale generator (e.g., figures 2-4 and column 5, lines 11-67, column 6, lines 1-67, column 8, lines 1-18) operative to obtain pixel data from the frame buffer (column 4, lines 62-67) and programmable via the computer system to generate gray scale formatted data (to generate gray scale shading using time or frame modulation

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technique and the different gray shades can be generated by turning on and off the pixel) according to the selected display mode (column 6, lines 48-60); and

(c) A logic device (multiplexor 208) having a parallel output (e.g., to a LCD display monitor), the logic device (SEL2 which may originate from a control register that is programmed by the CPU as indicated by the user) being adapted to select appropriate pixel data from the grayscale generator (figures 2-4) according to the selected display mode (see the abstract of the reference), and to provide the selected pixel data at the parallel output according to the selected display mode (figure 2, and column 6, lines 2-20).

Claim 2:

The claim 2 encompasses the same scope of invention as that of claim 1 except additional claimed limitation of a grayscale look up table control register programmable by the computer system. However, the Tjandrasuwita reference further discloses the claimed limitation of a grayscale look up table control register programmable by the computer system (i.e., the dithering engine 204 of figure 2, and the mapping scheme may be designed to be programmable as well, column 7, lines 60-67).

Claim 3:

The claim 3 encompasses the same scope of invention as that of claim 2 except additional claimed limitation of the grayscale look up table comprising a three dimensional matrix having a frame dimension (column 11, lines 52-67, e.g., FPFC[3:0]), a vertical dimension (FPVC[3:0]), a horizontal dimension (FPHC[3:0]), and a plurality of data entries associated with each combination of frame, vertical, and horizontal dimensions, and wherein the data entries comprise a plurality of matrix position enable

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bits adapted to indicate whether a pixel in the display is energized (column 9, lines 43-62).

Claim 4:

The claim 4 encompasses the same scope of invention as that of claim 3 except additional claimed limitation of the grayscale generator further comprising a frame counter, a vertical counter, and a horizontal counter, and wherein the grayscale look up table data entries define dithering operation for a pixel value according to the frame counter, the vertical counter, and the horizontal counter. However, the Tjandrasuwita reference further discloses the claimed limitation of the grayscale generator (e.g., figures 2-4 and column 5, lines 11-67, column 6, lines 1-67, column 8, lines 1-18) further comprising a frame counter, a vertical counter, and a horizontal counter (column 2, lines 47-62), and wherein the grayscale look up table data entries (Table 1 of column 7) define dithering operation for a pixel value according to the frame counter, the vertical counter, and the horizontal counter (column 2, lines 47-62).

Claim 5:

The claim 5 encompasses the same scope of invention as that of claim 4 except additional claimed limitation of the frame dimension comprising one of 3 and 4, wherein the vertical dimension comprises one of 3 and 4, and wherein the horizontal dimension comprises one of 3 and 4. However, the Tjandrasuwita reference further discloses the claimed limitation of the frame dimension (FPFC[3:0], see also column 9, line 64), wherein the vertical dimension comprises one of 3 and 4 (FPVC[3:0], column 9, line 57), wherein the horizontal dimension comprises one of 3 and 4 (FPHC[3:0], column 9, line 58).

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## Claim 6:

The claim 6 encompasses the same scope of invention as that of claim 5 except additional claimed limitation of the grayscale generator adapted to translate 3 bits of pixel data for a pixel in the display to generate grayscale formatted data for the pixel to provide 8 shades of gray according to the selected display mode and the grayscale lookup table data entries. However, the Tjandrasuwita reference further discloses the claimed limitation of the grayscale generator (e.g., figures 2-4 and column 5, lines 11-67, column 6, lines 1-67, column 8, lines 1-18) adapted to translate 3 bits of pixel data for a pixel in the display to generate grayscale formatted data for the pixel to provide 8 shades of gray according to the selected display mode (column 8, lines 3-18) and the grayscale lookup table data entries (Table 1 of column 7). It is noted that in the two-to-one mapping of the mapping of 16 possible gray-level inputs to 8 gray-levels, wherein the 4 bits of pixel data can be translated into 3 bits (Table 1 of column 7).

## Claims 7-8:

Claims 7-8 is a rephrasing of claims 5-6 in a method form. The claim is rejected for the same reason as set forth in claims 5-6.

## Claim 9:

Claim 9 is a rephrasing of claim 4 in a method form. The claim is rejected for the same reason as set forth in claim 4.

## Claim 10:

The claim 10 encompasses the same scope of invention as that of claim 6 except additional claimed limitation of the grayscale generator programmable by a user via an application program in the computer system. However, the Tjandrasuwita reference

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further discloses the claimed limitation of the grayscale generator (e.g., figures 2-4 and column 5, lines 11-67, column 6, lines 1-67, column 8, lines 1-18) programmable by a user via an application program in the computer system, e.g., the apparatus generates gray scale shading data in response to input color data that is programmable (see the abstract of the reference and column 4, lines 1-61 of the specification).

Claim 11:

The claim 11 encompasses the same scope of invention as that of claim 10 except additional claimed limitation of the application program being a video driver. However, the Tjandrasuwita reference further discloses the claimed limitation of the application program being a video driver (column 4, lines 9-61). The Office interprets the integrated processor circuit 101 as a video driver.

Claim 12:

Claim 12 is a rephrasing of claim 10 in a method form. The claim is rejected for the same reason as set forth in claim 10.

Claim 13:

The claim 13 encompasses the same scope of invention as that of claim 6 except additional claimed limitation of the display type. However, the Tjandrasuwita reference further discloses the claimed limitation of the display type (column 4, lines 52-61).

Claim 14:

Claim 14 is a rephrasing of claim 13 in a method form. The claim is rejected for the same reason as set forth in claim 13.

4. Claim 15:

The Tjandrasuwita reference has taught a grayscale generator (figures 2-4) operatively associated with a raster engine (i.e., the flat panel interface 113 of figure 2) to generate grayscale formatted data according to a selected display mode (the mode selecting circuit 403, see also the abstract of the reference), comprising:

(a) A grayscale look up table control register programmable by a computer system (e.g., the dithering engine 204 and the mapping scheme of column 7 may be designed to be programmable as well, and see also column 8, lines 3-67);

(b) A grayscale look up table (Table 1 of column 7) programmable by the computer system using the grayscale look up table control register (e.g., the dithering engine 204 and the mapping scheme of column 7 may be designed to be programmable as well, and column 8, lines 3-67).

Claims 16-21:

Claims 16-21 is a rephrasing of claims 3-8 in a method form. The claim is rejected for the same reason as set forth respectively in claims 3-8.

5. Claim 22:

The Tjandrasuwita reference has taught a raster engine (i.e., the flat panel interface 113 of figure 2) for interfacing a frame buffer in a computer system to one of a plurality of disparate display types (column 4, lines 52-61), comprising:

(a) Means for selecting a display mode (e.g., the mode selecting circuit 403, see also column 5, lines 58-65);

(b) Means for obtaining pixel data from the frame buffer (figure 1) and programmable via the computer system to generate grayscale formatted data according to



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the selected display mode (e.g., the dithering engine 204 and the mapping scheme of column 7 may be designed to be programmable as well, see also column 8, lines 3-67); and

(c) A parallel output means (multiplexor 208 having a parallel output) for selecting appropriate pixel data from the means for obtaining pixel data according to the selected display mode (figures 2-4), and for providing the selected pixel data at a parallel output according to the selected display mode (figure 2, and column 6, lines 2-20).

Claim 23-25:

Claims 23-25 is a rephrasing of claims 15-17 in a method form. The claim is rejected for the same reason as set forth respectively in claims 15-17.

Claim 26:

Claim 26 is a rephrasing of claim 19 in a method form. The claim is rejected for the same reason as set forth respectively in claim 19.

Claim 27:

Claim 27 is a rephrasing of claim 18 in a method form. The claim is rejected for the same reason as set forth respectively in claim 18.

### ***Remarks***

6. Applicant's arguments, filed 02/24/2003, paper number 4, have been fully considered but they are not deemed to be persuasive.

7. Applicant argues in essence that:

"Tjandrasuwita does not disclose a grayscale generator programmable... to generate grayscale formatted data according to the selected display mode."

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This is not found persuasive because Tjandrasuwita teaches an apparatus to generate gray scale shading data in response to input color data that is programmable. Tjandrasuwita's invention allows up to 16 brightness-levels to be generated per color and each color pixel can be programmed to have one of the 16 brightness-level waveforms stored in a memory by dynamically changing a number of variables such as pixel color offsets, frame offset, column offset, row offset, pixel mapping data, etc. and the brightness-level waveforms stored in the memory are also programmable (Please see the abstract of the cited reference for the essence of Tjandrasuwita's invention).

8. Applicant argues in essence that:

"The present invention provides a programmable grayscale generator to generate grayscale formatted data according to a selected display mode. Tjandrasuwita describes selecting either a TFT display mode or a STN display mode. However, only the STN display mode includes the gray scale logic. Thus, the gray scale logic of Tjandrasuwita is not programmable according to a selected display mode."

This is not found persuasive because Tjandrasuwita clearly states that the apparatus to generate gray scale shading data in response to input color data is programmable (the abstract) and the gray scale shading data is generated according to a selected display mode (column 5, lines 15-23).

For example, in column 4, lines 52-67 and column 5, lines 1-23, Tjandrasuwita further teaches a single graphics/display controller 107 that is capable of processing the data, formatting the processed data, and sending the formatted data to a disparate display

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device such as a liquid crystal display (LCD), a cathode ray tube (CRT), or a television (TV) monitor. If the display device is a LCD, the processed data from graphics/controller 107 is first sent to flat panel interface 113 before being passed on to the LCD and flat panel interface 113 further processes the data by further adding different color hues or gray shades for display. Additionally, depending on whether active matrix LCD or passive matrix LCD is used, flat panel interface 113 formats the data to suit the type of display. Please refer to column 4, lines 52-67 and column 5, lines 1-23 for more details.

Tjandrasuwita further teaches that FPI 113 can operate either an active-matrix (TFT) display or a passive-matrix (STN) display wherein only one display mode can be selected at any given time (column 6, lines 8-20). Tjandrasuwita describes selecting either a TFT display mode or a STN display mode that is programmable by a control register.

Applicant speculates that Tjandrasuwita's TFT module does not include a gray scaling logic and a similar circuitry to STN module. However, both TFT module and STN module has been drawn in parallel and operate mutually exclusively of each other. It is reasonable for Tjandrasuwita to illustrate in more detail only STN module. Based on the speculation that Tjandrasuwita's TFT module does not include a gray scaling logic, the Applicant further argues that the gray scale logic of Tjandrasuwita is not programmable according to a selected display mode. However, Tjandrasuwita has substantially described that the apparatus to generate gray scale shading data in response to input color data is programmable (see for example the abstract, column 4, lines 52-67, column 5, lines 1-67, column 6, lines 1-67 and column 7, lines 1-25) and that the dithering engine 204 and the mapping scheme of column 7 may be designed to be programmable as well (column 8, lines 3-67).

*Conclusion*

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (703) 605-1213. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-6606 for regular communications and (703) 308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 395-3900.

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jcw

March 6, 2003

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke extending to the right.

**MICHAEL RAZAVI**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**